REMARKS

Applicants intend this response to be a complete response to the Examiner's 9 January 2008 Final Office Action. Applicants have numbered the paragraphs in their response to correspond to the paragraph numbering in the Office Action for the convenience of the Examiner. Please note that related paragraphs are combined in paragraph number ranges, *e.g.*, 2-3.

DETAILED ACTION

The Amendment filed October 18, 2007 has been received. According to the Amendment, claims 1, 2, and 25 have been amended.

Currently, claims 1, 2, 8-10, 14-16, and 25-27 are pending in the application. Acknowledgment has been made.

Claim Rejections - 35 USC § 102
Claim Rejections - 35 USC § 103

Claims 1, 8-10, and 14 stand rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Abrahamson et al. (3,520,071).

The Examiner contends as follows:

> Referring to claim 1, Abrahamson discloses an apparatus for simulating a pulse and correlated heart beat of an animal including human, the apparatus comprising a playback device (e.g., computer 300, Fig 2) for generating a first electronic signal corresponding to a pulse (col. 3, line 73) and a second electronic signal corresponding to a correlated heart beat (col. 3, line 73), a tactile pulse simulator for receiving the pulse signal and generating a pressure pulses simulating an arterial pulse discernible by touch (col. 8, lines 39-44, lines 48-52; Fig.12) and an audio simulator for receiving the correlated heart beat signal (col. 9, lines 40-45) and recreating the heart beat to be heard through a stethoscope (50, Fig.12) (col. 4, lines 8-9). Note that, the applicant's disclosure suggested that these sounds could be computer generated, and preferably are reproduced using pre-recorded sounds from an actual person (Specification, page 66, lines 2-3). Abrahamson further teaches the electronic signals are computer generated (4:8-16; 9:38-57). Further, note that, the amended limitation of "wherein the simultaneous generation of correlated heart sounds and touch discernible arterial pulses is sufficient to allow training of medical practitioners to discriminate between normal cardiovascular function and abnormal cardiovascular function" is inherent from Abrahamson's teaching of using a stethoscope to diagnose the heart rate of the manikin. Abrahamson does not explicitly teach the amended limitation of the first and second electronic signals are generated from recordings of living animals including humans, however, it is notoriously well known to alternatively utilize and playback authentic pre-recorded natural sounds, to enhance the reality of a sound generation system.

First, Abrahamson at col. 3, line 73 states as follows: "The manikin **100** also has a heart beat, carotid and temporal pulse beats, blood pressure, and diaphragm and chest motion as he 'breathes.'" This sentence does not recite anything concerning how to generate such signals. Absent in this sentence is any reference to right and left pulses. Thus, the first contention of the Examiner is just wrong. Abrahamson does not disclose right and left pulses.

Moreover, the only mention of pulse beats associated with an arm **is in conjunction with and inseparable from the measuring of blood pressure**. Abrahamson at Col. 9, ll. 33-75. Thus,

Abrahamson does not disclose generating pulse beats at the wrist independent of a blood pressure measurement. In fact, the stethoscope **50** is connected to and an integral part of the blood pressure electronics. Additionally, pulses are cut off depending on the pressure being applied to the blood pressure device. No independent left or right pulse is generated by Abrahamson. Abrahamson does not even discuss left pulse generation as that arm is involved in monitoring medication injection.

Furthermore, the electronics for generating a pulse profile in Abrahamson is not due to actual recorded pulse information, but is generated from fairly sophisticated hardware and software. The present invention uses a play back unit of pre-recorded heart sounds and correlated pulses to permit medical studies to hear and feel correlated heart sounds of real people so that their skills at diagnosing cardiovascular abnormalities can be honed.

Of even greater note, is the fact that Abrahamson does not even disclose devices that produce touch cognizable outputs:

> The operating table 60 also **contains audio transducers which produce a sound for detection by the student in his anesthesiological procedures. Such actuators consist of heart sound and brachial artery monitoring in the form of two small head set transducers 180 and 190 whose tubular outlets are located in the left chest area and the right arm respectively.**
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> The means for generating the heart sound through the transducer **180** whose tubular outlet is located in the left chest area is shown in block diagram form in FIG. 10. The heart sound is simulated by properly modulating the amplitude of a fixed frequency oscillator **181**. The amplitude profile of the heart sound is obtained by adjusting the function generator **182**. The output of the function generator **182** and the output of the oscillator **181** will be fed to the modulator **183**. The modulator **183** output wil thus be of fixed amplitude and have the proper sound characteristics. Signal amplitude will be kept under computer **300** control by feeding the control signal from computer **300** and the modulator **183** signal to the electronic multiplier **184**.
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> The heart rate is computer controlled in the following way. The rate signal from computer **300** controls the frequency of a voltage controlled oscillator **185**. The output of oscillator **185** drives a one-shot multivibrator **186**, whose output is shaped to appropriately drive the function generator **182** by the ramp generator **197**. Arrhythmias may be simulated by generating appropriate extra or missing heart beats in the arrhythmia generator **188**, which is turned on and off at correct times by control signal from computer **300**. The output of the one-shot multivibrator **186** is also used to drive the pulse mechanism in the manikin **100** to insure synchronism. **In addition, it provides a synchronization signal to the sound generator for the sphygmomanometer.**
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> Fibrillation is simulated by disconnecting the heart sound generator **180**. The drive signals to the pulse actuator and the transducer **190** in the arm will be switched to appropriate signals simultaneously under computer control.
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> FIG. 11 shows the arrangement in schematic block diagram form for **simulating the brachial-artery sound during a blood pressure measurement. Two sound sources** are used; one **a normal pulse sound generator 191** and the **other a spurting or Korotkoff pulse sound generator 192**. Both these sources are synchronized with the heart rate sync signal obtained from the heart-sound generator of FIG. 10.
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> The generator which is used in driving **the brachial-artery sound source** is selected by comparatives within the computer **300**. If the cuff pressure in pressure cuff **193** shown in the sphygmomanometer instrument arrangement on the manikin's right arm **102**, as shown in FIG. 12, is above diastolic but below systolic, a comparator will select the spurting pulse generator **192**. Then cuff pressure reaches or exceeds systolic, both **sound generators 191** and **192** are diconnected.
>
> A fibrillating heart signal from the instructor's console **200** will also cause disconnections **of the brachial-artery sound generators 191 and 192**. The sphygmomanometer instrument arrangement shown in the right arm **102** of the manikin **100** in FIG. 12 allows a reading to be taken

> directly from a resistance potentiometer **194** integral to the pressure transducer **195**. The transducer **195** is driven by the actual hand bulb pump **196** attached to pressure cuff **193** which is place around the manikin's upper arm **102**. Tthe transducer **195** may be placed internal to the manikin **100**. The simulated pressure gage **197** is a voltmeter that is controlled by the computer **300**. A simulated pressure pulse, operated in synchronization with the pulse rate, is added to the static blood pressure by the computer **300** and causes realistic pulse flutter of the meter **197**. A signal from the actual pressure transducer potentiometer **194** is used by the computer **300** to compute the cuff pressure in pressure cuff **193**. **The tubular outlet of the brachial-artery sound source 190** is located in the arm **102** and supplies sound to the anesthetist's stethoscope **50**. **These sounds are controlled** by the computer **300**.

Abrahamson Col. 8, l. 73 to Col. 9, l. 75 **(emphasis added)**.

Abrahamson clearly does not disclose tacticle devices, but sound generating devices. This is totally consistent with Abrahamson's purpose. Abrahamson is gearing totally to hearing heart sounds and pulse sounds. Abrahamson does not teach touch cognizable devices and to so read Abrahamson disconnects Abrahamson from is purpose.

Looking at the Abrahamson stethoscope is also instructive in distinguishing the present invention over Abrahamson. Abrahamson's stethoscope **50** is directly connected to the manikin **100** – it is not a separate piece of equipment that is capable of being placed on the manikin **100** to hear anything anywhere on the manikin **100**. The manikin **100** is equip with a pulse sound generator, but only in connection with blood pressure measurements. In this context, the stethoscope **50** is an integral part of the manikin hardware for accomplishing this task.

Not only does Abrahamson not use disclose or even mention using recording of actual heart sound and pulse information, the Examiner cites no reference for his unsupported assertion that "it is notoriously well known to alternatively utilize and playback authentic pre-recorded natural sounds, to enhance the reality of a sound generation system." The Federal Circuit in KSR made it very clear that Examiner's are not permitted to rely on unsupported statements to proffer a rejection. The Examiner is required to explain and definitively support his/her positions and not base them on unsupported conjecture.

> Following these principles may be more difficult in other cases than it is here because the claimed subject matter may involve more than the simple substitution of one known element for another or the mere application of a known technique to a piece of prior art ready for the improvement. Often, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. **To facilitate review, this analysis should be made explicit.** See *In re Kahn*, 441 F. 3d 977, 988 (CA Fed. 2006) ("[R]ejections on obviousness grounds **cannot be sustained by mere conclusory statements**; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness"). As our precedents make clear, however, the analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.

KSR INT'L CO. v. TELEFLEX INC., No. 04-1350 (at last paragraph of section II A), 550 U.S. ___ (2007) (emphasis added).

Therefore, without support underpinning the Examiner's broad pronouncement, the pronouncement is without support and thereby undefinable.

Because Abrahamson does not disclose or even suggest right and/or left pulses based on actual recorded human pulses correlated with corresponding heart sounds, does not even teach devices that produce touch cognizable output (all Abrahamson's devices are sound generators), and the Examiner's statement on recordings in a mere conclusory statement, Abrahamson cannot anticipate claim 1 or render claim 1 obvious, and, Applicant, therefore, respectfully and strong urges the Examiner to withdraw this rejection and pass this claim onto allowance.

The Examiner contends as follows:

> Regarding claim 8, Abrahamson discloses that the tactile pulse simulator comprises a collapsible tube apparatus (8:39-47).

Applicant repeats its argument concerning Abrahamson here. Abrahamson does not disclose or even suggest devices that generate a touch cognizable output; Abrahamson only discloses sound generators. Additionally, there is simply no disclosure or even suggestion in Abrahamson to have heart sounds correlated with left and/or right pulse beats, regardless of how the pulses are generated. Applicant, therefore, respectfully and strong urges that the Examiner to withdraw this rejection and pass this claim onto allowance.

The Examiner contends as follows:

> Regarding claim 9, Abrahamson discloses that the tactile pulse simulator and the audio simulator are housed within a housing (6:10-11; 9:72-74).

Applicant repeats its argument concerning Abrahamson here. There is simply no disclosure

Applicant repeats its argument concerning Abrahamson here. Abrahamson does not disclose or even suggest devices that generate a touch cognizable output; Abrahamson only discloses sound generators. Additionally, there is simply no disclosure or even suggestion in Abrahamson to have heart sounds correlated with left and/or right pulse beats, regardless of how the pulses are generated. Applicant, therefore, respectfully and strong urges that the Examiner to withdraw this rejection and pass this claim onto allowance.

The Examiner contends as follows:

> Regarding claim 10, Abrahamson discloses that the tactile pulse simulator comprises a resilient cover covering a tactile switch capable of generating pulses simulating the arterial pulse (9:57-72).

Applicant repeats its argument concerning Abrahamson here. Abrahamson does not disclose or even suggest devices that generate a touch cognizable output; Abrahamson only discloses sound generators. Additionally, there is simply no disclosure or even suggestion in Abrahamson to have heart sounds correlated with left and/or right pulse beats, regardless of how the pulses are generated. Applicant, therefore, respectfully and strong urges that the Examiner to withdraw this rejection and pass this claim onto allowance.

The Examiner contends as follows:

> Regarding claim 14, Abrahamson discloses that the tactile pulse simulator is within a first housing (193) and the audio simulator is within a second housing (190) (Figure 12).

Applicant repeats its argument concerning Abrahamson here. Abrahamson does not disclose or even suggest devices that generate a touch cognizable output; Abrahamson only discloses sound generators. Additionally, there is simply no disclosure or even suggestion in Abrahamson to have heart sounds correlated with left and/or right pulse beats, regardless of how the pulses are generated. Applicant, therefore, respectfully and strong urges that the Examiner to withdraw this rejection and pass this claim onto allowance.

Claims 2 and 16 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Abrahamson (3,520,071) in view of Takashina et al. (6,461,165).

The Examiner contends as follows:

> Referring to claim 2, Abrahamson discloses an apparatus for simulating a right side pulse and correlated heart beat of an animal, the apparatus comprising a playback device for generating a first electronic signal corresponding to the right side pulse and a second electronic signal corresponding to a correlated heart beat (col. 3, line 73; col. 9, lines 57-72), a tactile pulse simulator for receiving the right pulse signal and generating a pressure pulses simulating a right side arterial pulse discernible by touch (col. 8, lines 39-44, lines 48-52), and an audio simulator for receiving the correlated heartbeat signal (col. 9, lines 40-45) and recreating the heartbeat to be heard through a stethoscope (col. 4, lines 8-9). Note that, the applicant's disclosure suggested that these sounds could be computer generated, and preferably are reproduced using pre-recorded sounds from an actual person (Specification, page 66, lines 2-3). Abrahamson further teaches the electronic signals are computer generated (4:8-16; 9:38-57). Further, note that the amended limitation of "wherein the simultaneous generation of correlated heart sounds and touch discernible arterial pulses is sufficient to allow training of medical practitioners to discriminate between normal cardiovascular function and abnormal cardiovascular function" is inherent from Abrahamson's teaching of using a stethoscope to diagnose the heart rate of the manikin. Abrahamson does not explicitly teach the amended limitation of the first and second electronic signals

> are generated from recordings of living animals including humans, however, it is notoriously well known to alternatively utilize and playback authentic pre-recorded natural sounds, to enhance the reality of a sound generation system. Furthermore, Abrahamson does not disclose the simulation of a left side pulse along with an electronic signal corresponding to the left side pulse and a tactile pulse simulator for receiving the left pulse signal and generating a pressure pulses simulating a left side arterial pulse discernible by touch. However, Takashina teaches the placement of electric pulse generators (col. 1, lines 63-67) on both sides of the body, more specifically both arms (Figure 2, items 5, 6, 7, and 8). It would have been obvious to one of ordinary skill in the art at the time of invention to place the structure described by Abrahamson on both sides of a manikin as taught by Takashina to create a complete simulation, as opposed to a half-body simulation, of the human heart beat and pulse.

Applicant repeats its argument concerning Abrahamson here. Abrahamson does not disclose or even suggest devices that generate a touch cognizable output; Abrahamson only discloses sound generators. Additionally, there is simply no disclosure or even suggestion in Abrahamson to have heart sounds correlated with left and/or right pulse beats, regardless of how the pulses are generated.

Takashina et al. do nothing to address the deficiencies of Abrahamson. Takashina et al. do disclose right and left pulse sensing position, but the positions are part of a pneumatic system. Takashina et al. do not disclose or even suggest electro-mechanical pulse generators and even specifically teach away from such devices: "Generating pulsation, heartbeat, respiration, etc. by utilizing the change of air pressure, it gives rise to no mechanical vibration sound reaching diagnosis positions through the air. Therefore, there is no possibility of giving rise to any noise when diagnosing." Applicant's invention utilizes electromechanical devices to generate tough cognizable signals, contrary to the quoted language of Takashina et al.

Because the combination of Abrahamson and Takashina et al. does not disclose or even suggest electromechanical devices for generating a touch cognizable pulse output and does not disclose or even suggest the use of correlated actual heart sound and pulse information, the combination cannot render claim 2 obvious. Applicant, therefore, respectfully and strong urges that the Examiner to withdraw this rejection and pass this claim onto allowance.

The Examiner contends as follows:

> Regarding claim 16, Abrahamson discloses that the tactile pulse simulator comprises a collapsible tube apparatus (col. 8, lines 39-47).

Abrahamson does not disclose or even suggest a device that generates a touch cognizable output. Abrahamson does indeed disclosed closed tube devices, but that generate sound not a touch cognizable output. The simulator of claim 16 produces the touch cognizable output but producing pressure pulses in a collapsible tube apparatus, which is a compact electro-hydraulic-mechanical devices that trusts a rod up and down in response to a change in pressure. Takashina et al.

specifically teach away from electromechanical devices, even if those devices use a fluid to lift a rod so that pressure pulses can be felt by touch.

Because the combination of Abrahamson and Takashina et al. does not disclose or even suggest electromechanical devices for generating a touch cognizable pulse output and does not disclose or even suggest the use of correlated actual heart sound and pulse information, the combination cannot render claim 16 obvious. Applicant, therefore, respectfully and strong urges that the Examiner to withdraw this rejection and pass this claim onto allowance.

Claims 15 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Abrahamson (3,520,071) in view of Takashina (6,461,165), further in view of Elwell (3,298,132).

The Examiner contends as follows:

> Abrahamson discloses that the tactile pulse simulator comprises a resilient cover covering a tactile switch capable of generating pulses simulating the arterial pulse (9:57-72). Abrahamson does not expressly disclose that the first housing simulates a human wrist or that the tactile pulse simulator is located at a position in the wrist corresponding to a position in the patient where the arterial pulse is detected and monitored. However, Takashina teaches that the pulse generators can be located at the brachial artery or radial artery positions (col. 4, lines 63-67). It would have been obvious to one of ordinary skill in the art at the time of invention to place the pulse generator at the wrist in order to simulate the pulse at a position on the human body where it is commonly know that the pulse is easy to detect.

Applicant repeats its argument concerning Abrahamson here. Abrahamson does not disclose or even suggest devices that generate a touch cognizable output; Abrahamson only discloses sound generators. Additionally, there is simply no disclosure or even suggestion in Abrahamson to have heart sounds correlated with left and/or right pulse beats, regardless of how the pulses are generated.

Takashina et al. and Elwell do nothing to address the deficiencies of Abrahamson. Takashina et al. do disclose right and left pulse sensing position, but the positions are part of a pneumatic system. Elwell discloses at least a right hand pulse, but again it is part of a pneumatic system. Takashina et al. and Elwell do not disclose or even suggest electro-mechanical pulse generators. In fact, Takashina et al. specifically teach away from such devices: "Generating pulsation, heartbeat, respiration, etc. by utilizing the change of air pressure, it gives rise to no mechanical vibration sound reaching diagnosis positions through the air. Therefore, there is no possibility of giving rise to any noise when diagnosing." Applicant's invention utilizes electromechanical devices to generate tough cognizable signals, contrary to the quoted language of Takashina et al.

Because the combination of Abrahamson and Takashina et al. and Elwell does not disclose or even suggest electromechanical devices for generating a touch cognizable pulse output and does

not disclose or even suggest the use of correlated actual heart sound and pulse information, the combination cannot render claim 15 obvious. Applicant, therefore, respectfully and strong urges that the Examiner to withdraw this rejection and pass this claim onto allowance.

Claims 25-27 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Abrahamson (3,520,071) in view of Takashina (6,461,165).

The Examiner contends as follows:

> Referring to claim 25, Abrahamson discloses an apparatus for simulating a pulse and correlated heart beat of a human, the apparatus comprising a playback device for generating an electronic signal corresponding to the right side pulse and a second electronic signal corresponding to a correlated heart beat (col. 3, line 73; col. 9, lines 57-72); a first housing including a first tactile pulse simulator for receiving the right side arterial pulse signal and generating a pressure pulses corresponding to a right arm arterial pulse discernible by touch (col. 8, lines 39-44, lines 48-52); and a second housing including an audio simulator for receiving the heart beat signal and generating an audible recreation of the correlated heartbeat (col. 9, lines 40-45) and designed to be heard through a stethoscope position on a surface of the housing (col. 4, lines 8-9). Note that, the applicant's disclosure suggested that these sounds could be computer generated, and preferably are reproduced using pre-recorded sounds from an actual person (Specification, page 66, lines 2-3). Abrahamson further teaches the electronic signals are computer generated (4:8-16; 9:38-57). Further, note that, the amended limitation of "wherein the simultaneous generation of correlated heart sounds and touch discernible arterial pulses is sufficient to allow training of medical practitioners to discriminate between normal cardiovascular function and abnormal cardiovascular function" is inherent from Abrahamson's teaching of using a stethoscope to diagnose the heart rate of the manikin. Abrahamson does not explicitly teach the amended limitation of the first and second electronic signals are generated from recordings of living animals including humans, however, it is notoriously well known to alternatively utilize and playback authentic pre-recorded natural sounds, to enhance the reality of a sound generation system. Furthermore, Abrahamson does not disclose a second electronic signal corresponding to the left side pulse and an additional housing including a second tactile pulse simulator for receiving the left side arterial pulse signal and generating a pressure pulses corresponding to a left arm arterial pulse discernible by touch. However, Takashina teaches the placement of electric pulse generators (col. 1, lines 63-67) on both sides of the body, more specifically both arms (Figure 2, items 5, 6, 7, and 8). It would have been obvious to one of ordinary skill in the art at the time of invention to place the structure described by Abrahamson on both sides of a manikin as taught by Takashina to create a complete simulation, as opposed to a half-body simulation, of the human heart beat and pulse.

Applicant repeats its argument concerning Abrahamson here. Abrahamson does not disclose or even suggest devices that generate a touch cognizable output; Abrahamson only discloses sound generators. Additionally, there is simply no disclosure or even suggestion in Abrahamson to have heart sounds correlated with left and/or right pulse beats, regardless of how the pulses are generated.

Takashina et al. do nothing to address the deficiencies of Abrahamson. Takashina et al. do disclose right and left pulse sensing position, but the positions are part of a pneumatic system. Takashina et al. do not disclose or even suggest electro-mechanical pulse generators and even specifically teach away from such devices: "Generating pulsation, heartbeat, respiration, etc. by utilizing the change of air pressure, it gives rise to no mechanical vibration sound reaching diagnosis

positions through the air. Therefore, there is no possibility of giving rise to any noise when diagnosing." Applicant's invention utilizes electromechanical devices to generate tough cognizable signals, contrary to the quoted language of Takashina et al.

Because the combination of Abrahamson and Takashina et al. does not disclose or even suggest electromechanical devices for generating a touch cognizable pulse output and does not disclose or even suggest the use of correlated actual heart sound and pulse information, the combination cannot render claim 25 obvious. Applicant, therefore, respectfully and strong urges that the Examiner to withdraw this rejection and pass this claim onto allowance.

The Examiner contends as follows:

> Regarding claim 26, Abrahamson, as modified by Takashina, discloses that the tactile pulse simulator comprises a collapsible tube apparatus (col. 8, lines 39-47).

Applicant repeats its argument concerning Abrahamson here. Abrahamson does not disclose or even suggest devices that generate a touch cognizable output; Abrahamson only discloses sound generators. Additionally, there is simply no disclosure or even suggestion in Abrahamson to have heart sounds correlated with left and/or right pulse beats, regardless of how the pulses are generated.

Takashina et al. do nothing to address the deficiencies of Abrahamson. Takashina et al. do disclose right and left pulse sensing position, but the positions are part of a pneumatic system. Takashina et al. do not disclose or even suggest electro-mechanical pulse generators and even specifically teach away from such devices: "Generating pulsation, heartbeat, respiration, etc. by utilizing the change of air pressure, it gives rise to no mechanical vibration sound reaching diagnosis positions through the air. Therefore, there is no possibility of giving rise to any noise when diagnosing." Applicant's invention utilizes electromechanical devices to generate tough cognizable signals, contrary to the quoted language of Takashina et al.

Because the combination of Abrahamson and Takashina et al. does not disclose or even suggest electromechanical devices for generating a touch cognizable pulse output and does not disclose or even suggest the use of correlated actual heart sound and pulse information, the combination cannot render claim 26 obvious. Applicant, therefore, respectfully and strong urges that the Examiner to withdraw this rejection and pass this claim onto allowance.

The Examiner contends as follows:

> Regarding claim 27, Abrahamson, as modified by Takashina, discloses that the tactile pulse simulators comprise a resilient cover covering the tactile switch capable of generating pulses simulating the arterial pulse (9:57-72).

Applicant repeats its argument concerning Abrahamson here. Abrahamson does not disclose or even suggest devices that generate a touch cognizable output; Abrahamson only discloses sound generators. Additionally, there is simply no disclosure or even suggestion in Abrahamson to have heart sounds correlated with left and/or right pulse beats, regardless of how the pulses are generated.

Takashina et al. do nothing to address the deficiencies of Abrahamson. Takashina et al. do disclose right and left pulse sensing position, but the positions are part of a pneumatic system. Takashina et al. do not disclose or even suggest electro-mechanical pulse generators and even specifically teach away from such devices: "Generating pulsation, heartbeat, respiration, etc. by utilizing the change of air pressure, it gives rise to no mechanical vibration sound reaching diagnosis positions through the air. Therefore, there is no possibility of giving rise to any noise when diagnosing." Applicant's invention utilizes electromechanical devices to generate tough cognizable signals, contrary to the quoted language of Takashina et al.

Because the combination of Abrahamson and Takashina et al. does not disclose or even suggest electromechanical devices for generating a touch cognizable pulse output and does not disclose or even suggest the use of correlated actual heart sound and pulse information, the combination cannot render claim 27 obvious. Applicant, therefore, respectfully and strong urges that the Examiner to withdraw this rejection and pass this claim onto allowance.

Response to Arguments

The Examiner states as follows:

> Applicant's arguments filed October 18, 2007 have been fully considered but they are not persuasive.
>
> Applicant argued that the reference of Abrahamson does not teach the limitation of simultaneous monitoring of touch sensitive pulse simulators and a stethoscope (Applicant's remarks, page 6, last paragraph) is deemed not to be persuasive. Abrahamson discloses an apparatus for simulating a pulse and correlated heart beat comprising a playback device (e.g., computer 300, Fig 2) for generating a first electronic signal corresponding to a pulse (col. 3, line 73) and a second electronic signal corresponding to a correlated heart beat (col. 3, line 73), a tactile pulse simulator for receiving the pulse signal and generating a pressure pulses simulating an arterial pulse discernible by touch (col. 8, lines 39-44, lines 48-52; Fig. 12) and an audio simulator for receiving the correlated heart beat signal (col. 9, lines 40-45) and recreating the heart beat to be heard through a stethoscope (50, Fig.12) (col. 4, lines 8-9). Thus, Abrahamson does anticipate applicant' claimed limitations.
>
> Applicant argued that the reference of Abrahamson (and/or Takashina/Elwell) does not teach the limitation of correlated heart sounds and pulses that are based on recording of living animals (Applicant's remarks, page 7, 1st paragraph; page 11, 1st full paragraph) is deemed not to be persuasive. Regarding the amended limitation of the first and second electronic signals are generated from recordings of living animals including humans, it is notoriously well known to alternatively utilize and playback authentic pre-recorded natural sounds, to enhance the reality of a sound generation system.

Applicant argued that the Abrahamson device is not capable simultaneously generating heart sounds and correlated right and/or left side touch discernible pulses for the training of medical practitioners in discriminating between normal cardiovascular function and abnormal cardiovascular function through hearing and touch only. (Applicant's remarks, page 8, 2nd paragraph) is deemed not to be persuasive. As being addressed above, this limitation is inherent from Abrahamson's teaching of using a stethoscope to diagnose the heart rate of the manikin (Fig.12).

Regarding applicant's argument that a medical practitioner using a finger to be trained to discriminate between normal cardiovascular function and abnormal cardiovascular function (Applicant's remarks, page 8, lines 11-13) is deemed not to be persuasive because this limitation has not been claimed.

Applicant argued that combination of Abrahamson and Takashina does not disclose, teach or suggest the simultaneous monitoring of heart sounds and pulses (right and/or left) that are correlated from recording of living animals for training medical practitioners in discriminate between normal cardiovascular function and abnormal cardiovascular function (Applicant's remarks, page 9, 1st full paragraph) is deemed not to be persuasive. Abrahamson discloses an apparatus for simulating a right side pulse and correlated heart beat of an animal, the apparatus comprising a playback device for generating a first electronic signal corresponding to the right side pulse and a second electronic signal corresponding to a correlated heart beat (col. 3, line 73; col. 9, lines 57-72), a tactile pulse simulator for receiving the right pulse signal and generating a pressure pulses simulating a right side arterial pulse discernible by touch (col. 8, lines 39-44, lines 48-52), and an audio simulator for receiving the correlated heartbeat signal (col. 9, lines 40-45) and recreating the heartbeat to be heard through a stethoscope (col. 4, lines 8-9). Note that, the amended limitation of "wherein the simultaneous generation of correlated heart sounds and touch discernible arterial pulses is sufficient to allow training of medical practitioners to discriminate between normal cardiovascular function and abnormal cardiovascular function" is inherent from Abrahamson's teaching of using a stethoscope to diagnose the heart rate of the manikin. Further, Takashina teaches the placement of electric pulse generators (col. 1, lines 63-67) on both sides of the body, more specifically both arms (Figure 2, items 5, 6, 7, and 8). It would have been obvious to one of ordinary skill in the art at the time of invention to place the structure described by Abrahamson on both sides of a manikin as taught by Takashina to create a complete simulation, as opposed to a half-body simulation, of the human heart beat and pulse. Thus, the combination of Abrahamson and Takashina does make obvious applicant's claimed limitations.

First, Applicant wholly disagrees with the Examiner statement that "it is notoriously well known to alternatively utilize and playback authentic pre-recorded natural sounds, to enhance the reality of a sound generation system." If such were the case, the Examiner would have a reference to support such at wholly unsupportable comments. The decision in KSR does not permit an Examiner to make such a statement without support. As the Examiner has not produced such supporting documentation, Applicant must assume that at the time of the filing of this application, there was no such teaching in the prior art. Since the Examiner does not support his statement, the Examiner's statement cannot be given any weight as the KSR decision made it clear that unsupported statements are not permitted in examination.

The Examiner continues to misread or read Abrahamson. Abrahamson generates heart sounds and pulse **sounds** based on **sound generators**. Abrahamson does not disclose any devices that generate a touch cognizable output. Takashina et al. and Ewell are pneumatic systems, and Takashina et al. specifically teach away from mechanical devices.

Moreover, pneumatic and/or hydraulic systems are not near as precise and flexible as tactile generators based on solid state electronics such as the transducer based pulse generators of this invention.

Applicant do not believe that any of the references singly or collectively discloses, teaches or suggest mechanical or electromechanical devices that generate a touch cognizable output or generate correlated heart sounds and tactile pulse outputs from the playback of actually recordings of living animals heart sounds and pulse information. Because none of these references singly or collectively disclose such an arrangement, the present claims are allowable over the rejections.

The Commissioner is authorized to charge any additional fees or credit any overpayments to Deposit Account No. 501518.

Respectfully Submitted,

Date: **May 9, 2008**

Robert W. Strozier, Reg. No. 34,024